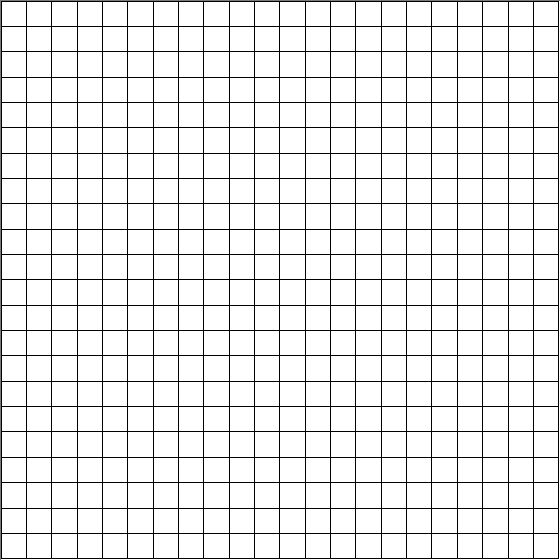
**Graphing Quadratics Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Standard Form Application Problem**

If you think of one bridge tower as the y-axis of a coordinate system and the bridge surface as the x-axis, the shape of the main suspension cable is like the graph of a quadratic function. Let the function defining the curve of one suspension cable be:

 x = distance (ft) from one tower; y = distance (ft) above the bridge surface

* 1. Create a graph that represents the suspension cable. opens\_\_\_\_\_\_\_\_

vertex\_\_\_\_\_\_\_\_ AOS\_\_\_\_\_\_\_\_

x-intercepts\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

y-intercept\_\_\_\_\_\_\_\_ pt. of refl\_\_\_\_\_\_\_\_

* 1. What is the height (from the bridge surface) of the towers from which the cable is suspended? Where on the graph can this information be found?
  2. What is the shortest distance from the cable to the bridge surface? How far from the first tower does this occur? Where on the graph can this information be found?

1. How far apart are the two towers if they are the same height above the surface of the bridge? How can this be determined from the graph?
2. For what interval(s) of x is the suspension cable at least 45 feet above the bridge surface?
3. If there are lights posts along the bridge that are 20 feet tall, at what point, if any, would the cable drop below the light on the post? Explain how you know.